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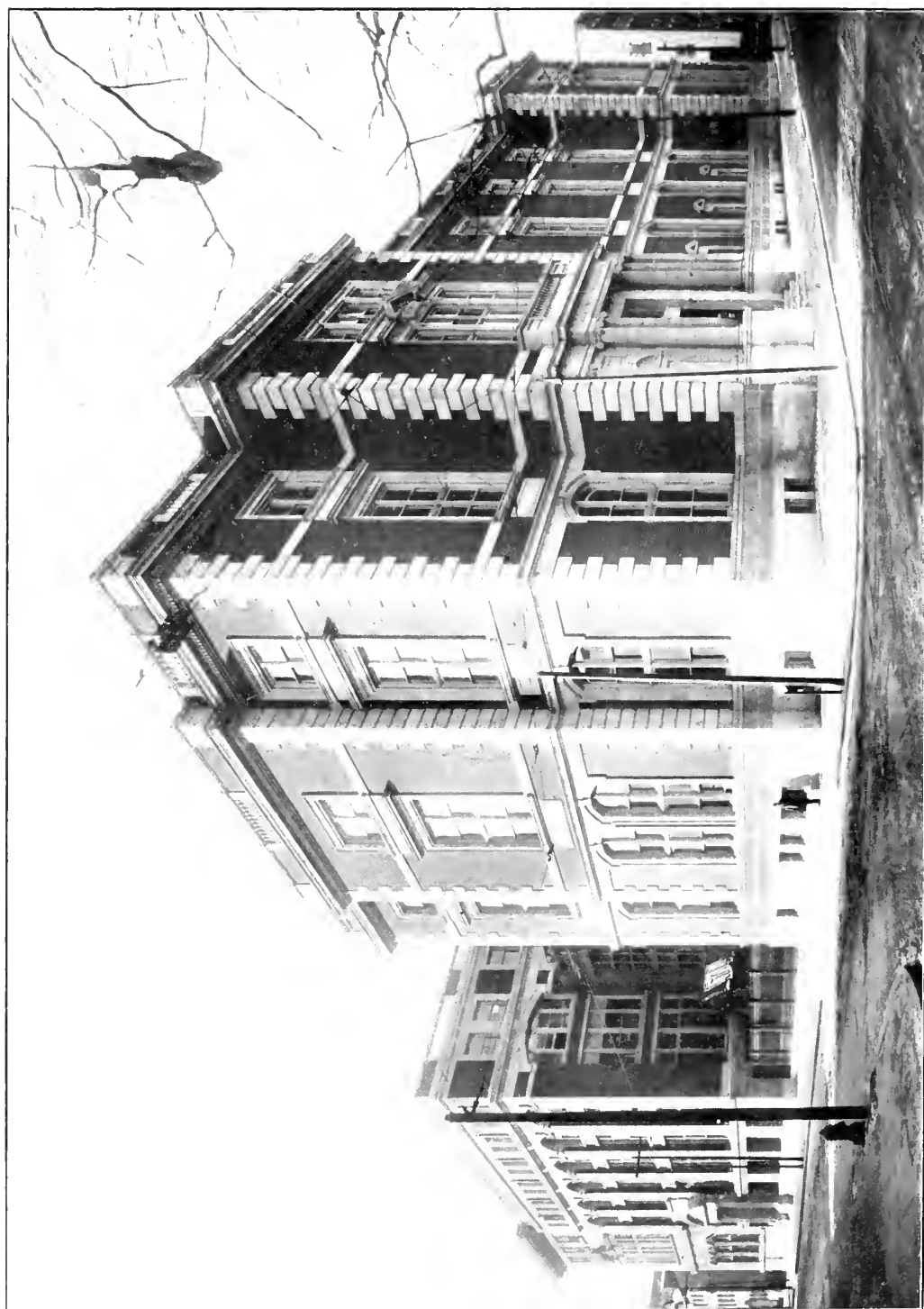
Received April 28, 1911

THE
Academy of Natural Sciences

OF
PHILADELPHIA

ANNUAL REPORTS

1910



THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA

The following Reports were ordered to be printed:

REPORT OF THE RECORDING SECRETARY.

Sixteen meetings have been held during the year with an average attendance of twenty-five. Communications were made by Benjamin Sharp, Henry Leffmann, William M. Wheeler, Henry A. Pilsbry, John M. Macfarlane, John W. Harshberger, Thomas H. Montgomery, Henry W. Fowler, Arthur Erwin Brown, Edward J. Nolan, Charles S. Boyer, Thomas S. Stewart, Hugo Bilgram, Silas Shumo, Frank J. Keeley, T. Chalkley Palmer, William B. Davis, William H. Van Sickle, Henry Skinner, Chester A. Reeds, Edgar T. Wherry, F. Lynwood Garrison, Witmer Stone, Samuel N. Rhoads, and Miss N. H. Wardle. But few of these were reported for publication.

Thirty-three papers were presented for publication, as follows: Henry W. Fowler, 6; Henry A. Pilsbry, 3; James A. G. Rehn and Morgan Hebard, 3; James A. G. Rehn, 2; T. Chalkley Palmer, 2; R. Southern, 1; Bryant Walker, 1; Harold Sellers Coulton, 1; H. A. Pilsbry and J. H. Ferris, 1; H. A. Pilsbry and A. P. Brown, 1; C. S. Sargent, 1; Margaret Harris Clark, 1; Henry W. Fowler and Richard J. Phillips, 1; J. Percy Moore, 1; Edward J. Nolan, 1; Thomas Barbour, 1; Katherine J. Busch, 1; Francis W. Pennell, 1; Clarence B. Moore, 1; Edgar F. Smith, 1; T. D. A. Cockerell, 1, and Burnett Smith, 1.

Thirty-one of these have been printed in the PROCEEDINGS, one has been returned to the author, another (by Mr. Clarence B. Moore) forms the second part of the fourteenth volume of the quarto JOURNAL. The number is beautifully illustrated and the Academy is again indebted to Mr. Moore for the entire cost of publication.

The following are the statistics of publication for the year: PROCEEDINGS, 720 pages and 43 plates; JOURNAL, 110 pages and 20 plates; ENTOMOLOGICAL NEWS, 484 pages and 14 plates; TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY (Entomological Section of the Academy), 306 pages and 4 plates; MANUAL OF CONCHOLOGY, 94 pages and 16 plates, making a total of 1,714 pages and 97 plates.

Seven members and three correspondents have been elected. The deaths of sixteen members and five correspondents have been announced. The Academy sustained a severe loss in the death of Dr. Arthur E. Brown, the senior Vice-President, whose services to the society

were recognized in a minute of appreciation and regret placed on the records and published in the PROCEEDINGS.

The resignation of membership of C. H. Smyth, Jr., was accepted.

A resolution was adopted providing for the participation of the Academy in a meeting to be held by the American Philosophical Society for the reception of portraits of the late Isaac Lea and Henry C. Lea. The President, Dr. Dixon, was requested to act as the Academy's representative on the occasion.

The Secretary has devoted such time as could be secured from routine work to the accumulation of material for the proposed detailed history of the Academy in course of preparation for the celebration of its Centenary in 1912.

The index to the publications will be completed on the issue of the last number of the PROCEEDINGS for 1910. The alphabetical arrangement of the index to the genera and species, a rather trying piece of work, will be accomplished as promptly as possible, so that the supplementary volume may be issued in connection with the Centenary.

EDWARD J. NOLAN,
Recording Secretary.

REPORT OF THE CORRESPONDING SECRETARY.

During the fiscal year just closed the roll of correspondents was changed by five deaths and three elections. The deceased were Peter MacOwen, R. Bowdler Sharpe, Alexander Agassiz, Eduard Van Beneden and William H. Brewer. Those elected are Prof. Edward B. Poulton, Prof. Thomas Hunt Morgan, and Dr. L. O. Howard.

The year was noteworthy for the many learned congresses and events of scientific interest in which the Academy was invited to participate. Among the most important of these were the following: The Third International Congress of Botany; the International Institute of Agriculture; the Eighth International Zoological Congress; the Semicentennial Anniversary of the Entomological Society of Russia; the International Hygiene Exhibition at Dresden in 1911; the Eleventh International Geological Congress; the International Agro-geological Conference; the Seventeenth International Congress of Americanists; the First International Congress of Entomology; the Solvay Institute of Sociology; the Tenth International Congress of Geography and the American Association of Museums.

Most of these invitations were acknowledged by suitable letters

expressive of the Academy's interest and appreciation. Delegates, most of whom were in attendance at the meetings, were appointed as follows: To the Third International Congress of Botany, Prof. J. C. Arthur; to the Eleventh International Geological Congress, Dr. Richard A. F. Penrose and Dr. Edgar T. Wherry; to the Eighth International Zoological Congress, Prof. E. G. Conklin and Prof. Ludwig v. Graff, and to the First International Congress of Entomology, Dr. Henry Skinner.

A rather larger number than usual of letters requesting information or assistance were either answered by the Corresponding Secretary or referred to other officers of the Academy.

A tabulated statement of the correspondence for the year follows:

COMMUNICATIONS RECEIVED.

Acknowledging receipt of the Academy's publications.....	223
Transmitting publications to the Academy.....	56
Requesting exchanges or the supply of deficiencies.....	11
Invitations to learned gatherings.....	14
Notices of deaths of scientific men.....	6
Circulars concerning the administration of scientific institutions, etc.....	19
Biographies and photographs of correspondents.....	3
Miscellaneous letters.....	92
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Total received.....	424

COMMUNICATIONS FORWARDED.

Acknowledging gifts to the Library.....	1,084
Acknowledging gifts to the Museum.....	59
Acknowledging photographs and biographies.....	3
Requesting the supply of deficiencies in periodicals.....	67
Letters of sympathy and congratulation, etc.....	4
Miscellaneous letters.....	89
Diplomas and notices of election of correspondents and delegates.....	6
Annual Reports and other publications sent to correspondents.....	424
Circular letters.....	91
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Total forwarded.....	1,827

Respectfully submitted,

J. PERCY MOORE,
Corresponding Secretary.

REPORT OF THE LIBRARIAN.

During the past year the growth of the Library has consisted of 6,449 pamphlets and parts of periodicals, 942 volumes, 148 sheets and engravings and 64 maps, making a total of 7,603.

They have been received from the following sources:

In exchange from societies and editors.....	3,228	Argentine Government.....	2
I. V. Williamson Fund.....	2,806	Congrès Internationale de Botanique.....	2
United States Department of Agriculture.....	376	Illinois Bureau of Labor Statistics.....	2
General appropriation.....	257	Geological Survey of Georgia.....	2
Authors.....	226	Cuerpo de Ingenieros de Minas del Peru.....	2
Editors.....	184	Ministère de l'Agriculture de la Republique Argentine.....	2
James Aitken Meigs Fund.....	184	Maryland Weather Bureau.....	2
United States Department of the Interior.....	63	Maryland Geological Survey.....	2
United States Treasury Department.....	35	Mississippi State Geological Survey.....	2
Thomas B. Wilson Fund.....	34	Pennsylvania Department of Health.....	1
United States Department of Commerce and Labor.....	21	State Geological Survey of North Dakota.....	1
Dr. Benjamin Sharp.....	16	Funk & Wagnalls Co.....	1
Imperial Geological Survey of Japan.....	11	Department of Fisheries, New South Wales.....	1
United States War Department.....	10	Ministerio de Colonizacion de Bolivia.....	1
Estacion Sismologica de Cartuja.....	10	William J. Fox.....	1
Pan-American Union.....	10	Florida State Geological Survey.....	1
Dr. Edward J. Nolan.....	9	Dr. Thomas A. Storey.....	1
East Indian Government.....	9	State University of Oklahoma.....	1
Marine Biological Laboratory, Woods Hole.....	8	Long Island Railroad Co.....	1
Pennsylvania Department of Agriculture.....	6	Stewardson Brown.....	1
Illinois Geological Survey.....	5	F. W. Putnam.....	1
Dr. Philip P. Calvert.....	5	Iowa Geological Survey.....	1
Publication Committee, Academy	5	Sir Robert W. Best.....	1
Massachusetts Agricultural Experiment Station.....	5	French Government.....	1
Université de Genève.....	5	Dr. Henry Skinner.....	1
Michigan Geological and Biological Survey.....	5	Provincial Museum, Victoria, B. C.....	1
United States Brewers' Association.....	4	Royal Society.....	1
New York Agricultural Experiment Station.....	4	Dr. S. G. Dixon.....	1
Commission de la Belgique.....	4	Franciscan Fathers, Saint Michaels, Ariz.....	1
Lowell Observatory.....	3	Danish Government.....	1
Pennsylvania State Library.....	3	Carnegie Foundation for Advancement of Teaching.....	1
American Associations of Museums.....	3	Clarence B. Moore.....	1
Observatoire Astronomique d'Upsala.....	3	Conservation Commission of Maryland.....	1
E. G. Vanatta.....	3	Bureau of British Marine Zoology	1
Pennsylvania Department of Fisheries.....	3	Commissioners on Fisheries and Game, Massachusetts.....	1
H. A. Pilsbry.....	3	Geological Survey of New Jersey..	1
Delaware County Institute of Science.....	2	Marshall H. Saville and George G. Heye.....	1

These accessions were distributed to the several departments of the library as follows:

Journals.....	5,717	Helminthology.....	34
Agriculture.....	405	Medicine.....	30
Geology.....	304	Mineralogy.....	26
Botany.....	270	Ornithology.....	24
Voyages and Travels.....	133	Physical Sciences.....	24
General Natural History.....	125	Ichthyology.....	21
Entomology.....	123	Bibliography.....	13
Geography.....	97	Chemistry.....	7
Anatomy and Physiology.....	76	Herpetology.....	6
Anthropology.....	62	Mathematics.....	5
Mammalogy.....	39	Encyclopedias.....	4
Conchology.....	38	Unclassified.....	20

Five hundred and forty-three volumes have been bound, being but little more than the unbound accessions of the year. The accumulation of unbound volumes has been nearly all put in proper shape by the liberal appropriations of the few preceding years.

A careful count of the books now in the possession of the Academy furnishes the following statistics:

Journals.....	32,926	Geography.....	640
Geology.....	3,851	Mathematics.....	577
General Natural History.....	3,453	Mammalogy.....	430
Botany.....	3,405	Ichthyology.....	405
Voyages and Travels.....	2,307	Helminthology.....	311
Anatomy and Physiology.....	1,961	Philology.....	298
Anthropology.....	1,573	Chemistry.....	293
Entomology.....	1,379	Herpetology.....	204
Ornithology.....	1,054	Meigs Library (Miscellaneous)....	1,794
Conchology.....	952	Warner Library (Miscellaneous)....	132
Dictionaries and Encyclopedias.....	891	Library of the Entomological Section (American Entomol- ogical Society).....	4,150
Agriculture.....	882	Unclassified.....	374
Medicine.....	809		
Bibliography.....	744		
Physical Science.....	690		
Mineralogy.....	671		67,161

This is an increase of 15,912 volumes since the enumeration of 1901. In view of the strictly special character of the library this should be regarded as a gratifying exhibit. It represents the steady current growth of the collections, no large libraries having been received *en bloc*. The separate pamphlets have not been counted, but an estimate has been made of the number of volumes those still unbound would make if arranged uniformly with the rest of the collection.

Many of the volumes in the library of the Entomological Section are duplicates of those on the shelves of the Academy. There is an apparent falling off of 121 volumes on Conchology instead of an increase, but this is accounted for by the fact that the Conchological journals were formerly placed with the special books on that subject,

whereas they have now been transferred to the section of Journals and Periodicals, where they properly belong. Similarly some of the books in the Meigs Library have been removed from the miscellaneous collection, which is only retained because of a condition imposed by the donor, John G. Meigs.¹ The separated books have been placed with related works in the general library.

Special attention may be called to the following accessions:

Nature Notes. London. Eighteen volumes.
Giornale Arcadico di Scienze, Roma. Seventeen volumes.
Mémoires de la Société Géologique de France; Paléontologie. Volumes V-XVI.
Annales de l'Université de Grenoble. Twenty-one volumes.
Thurston's *Castes and Tribes of Southern India*. Seven volumes.
Grote, Vogt and Hofer's *Süsswasser Fische von Mitteleuropa*.
George G. Heye Expedition, *Contributions to South American Archaeology*.

The Academy is indebted to His Royal and Imperial Highness the Grand Duke Ludwig Salvator of Austria for the gift of twenty-three superbly illustrated volumes, the privately printed records of many years of travel and exploration. The works relate for the most part to the geography, physical characters, ethnography and history of some of the islands of the Mediterranean Sea and are finely illustrated with hundreds of figures and plates. The collection includes a beautiful panorama, twelve feet in length, of the Bay of Alexandrette, the ancient *Alexandria ad Issum*.

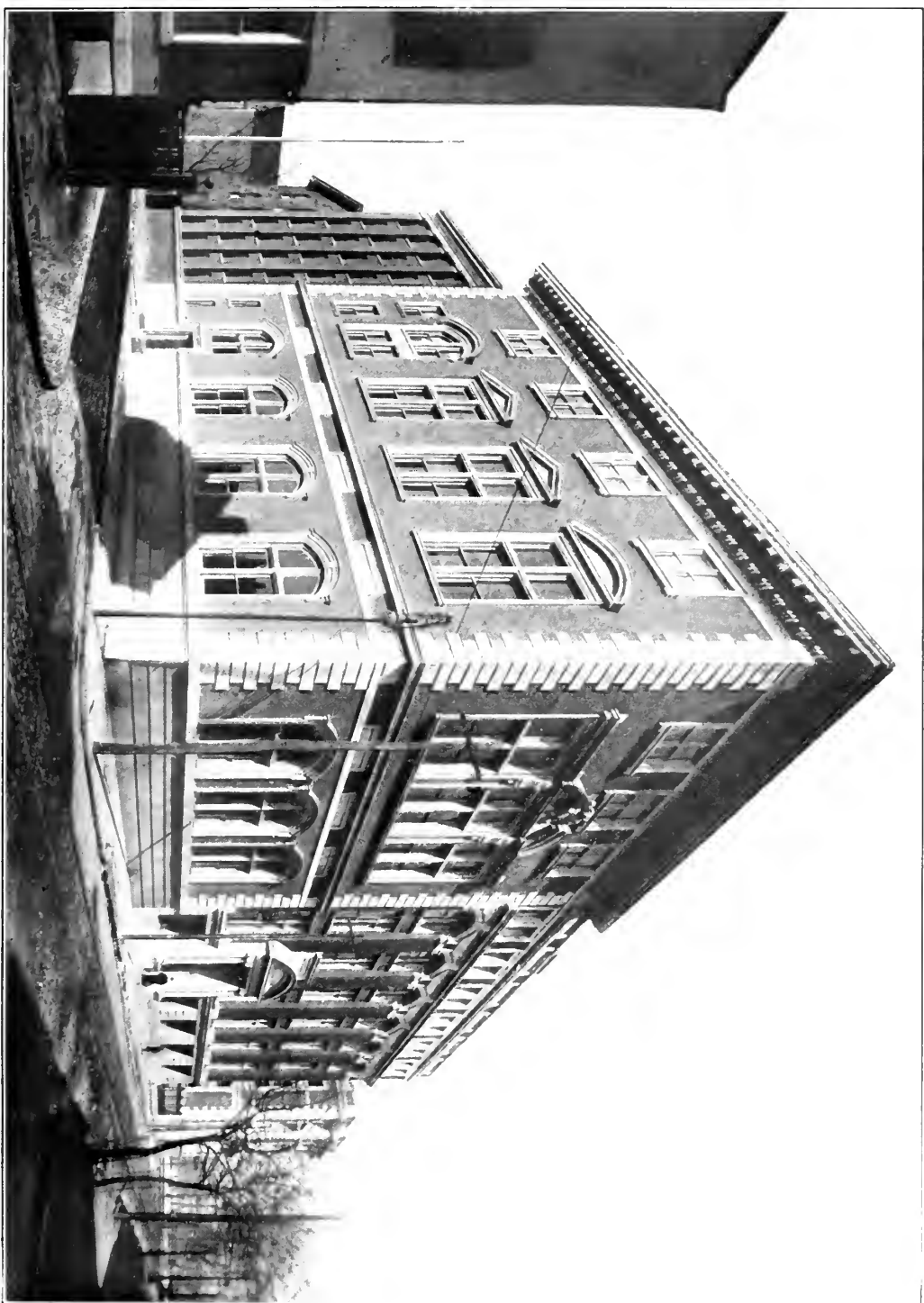
The books were secured through the active interest of the late Dr. Theodore de Thodorovitch, who, as a member of the Academy and in his official capacity as Austro-Hungarian Consul, represented the claims of the library as a depository of the desired works based on its importance to students of science and its liberality of administration.

It is a cause of sincere regret that the death of Dr. de Thodorovitch before the arrival of the volumes deprived the Academy of the opportunity of making to him the acknowledgment of obligation he so well deserved.

We are also indebted to the Hon. Maurice Francis Egan, our Minister to Denmark, for his co-operation in securing by exchange the valuable publications of Dr. Wesenburg-Lund's Fresh-water Laboratory, which we were not able to procure through the booksellers.

The following new serials have been added to the library during the year:

¹ See Report of Librarian for 1895.



THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

LIBRARY, LECTURE ROOM, AND LABORATORIES.

STACK IN REAR.

Geologische Rundschau. Leipzig.
Biologische Zeitschrift. Moscow.
Der Pilzfreund. Lucerne.
Nature Study Review. Urbana.
Midland Naturalist. Notre Dame.
Der Naturfreund. Godesberg.
Unsere Welt. Godesburg.
Natur. Leipzig.
Bolletino del Museo Civico di Firenze.
South African Journal of Science.
Folia Haematologia. Leipzig.
Proceedings of the Association of Economic Biologists. London.

In the course of a careful revision of the arrangement and cataloging of the journals as now placed in the stacks, fifty numbers, nearly all unimportant, could not be found. Some of these may be misplaced, although a careful search has been made for them, and others may be returned. These were not reported in 1904 when the last account of stock was taken, because of the lack of a shelf-list of the section of Journals and Periodicals, so that the loss extends over an undetermined number of years. Since that account was taken two works, then reported missing, have been returned, but sixteen others cannot be found. It may be that some of these have been illegally borrowed and will be also brought back, but it is much to be feared that a volume of the *Pennsylvania Geological Survey Reports*, Catlin's *Indians*, edition of 1841, Jardine's *Wilson's Ornithology*, Wolle's *Diatoms*, Gurney's *Distillation* (of which the title-card was also stolen from the catalogue) and Chavasse's *Advice to a Wife* have been taken by the most detestably mean of all thieves, the one who appropriates for his own use what is being held for the general good.

It is believed that these losses were all incurred before the arrangement of the library in the stacks.

The Librarian attended the International Conference of Archivists and Librarians in Bruxelles, August 28-31. The proceedings were not of much importance to the Academy, but the brief visit to Belgium, especially to the towns between Antwerp and Bruxelles, was full of delight and profit.

It gives the Librarian much pleasure to again acknowledge his indebtedness to his Assistant, William J. Fox, who, by his co-operation in the work of the Publication Committee, as well as of the Library, has afforded the opportunity for progress with the proposed detailed history of the Academy.

Efficient service has also been rendered by Furman Sheppard Wilde, who has been an assistant in the library since last February.

EDWARD J. NOLAN,
Librarian.

REPORT OF THE CURATORS.

The plans outlined in the Curators' report for 1909 for alterations in the exterior of the building, made possible by the appropriation of \$60,000 by the Commonwealth of Pennsylvania at the last session of the Legislature, have been successfully carried out.

The walls of the original green-stone building have been encased in granite, brick and terra cotta, which effectually checks any further deterioration and makes this wing uniform in appearance with the new library wing on Cherry Street. Granite and terra cotta facings have also been added to the middle brick building to bring it into harmony with the other two. A number of the windows have been altered with the object of furnishing additional light and conforming to the general architectural design, while new doorways have been constructed at the entrances on Race and Nineteenth Streets.

The results of the alterations are very satisfactory, making one harmonious building of the several wings that have been erected at different periods since the Academy first occupied its present site.

A slight alteration was made during the year in the library building, by which two office rooms on the gallery were thrown together, making a commodious Council room, to which the bookcases and other furnishings of the old Council room have been transferred. Additional radiators were erected in the herbarium, and two laboratory tables and a number of rugs were purchased for the work-rooms and offices of the scientific staff.

The building operations which were in progress during the greater part of the year naturally interfered with any extensive rearrangement of the exhibits. The north wing had to be closed entirely for several months and the cleansing and replacing of the cases have only just been completed.

In the middle wing the entire exhibition series of Mammals has been removed from the cases, the floors of which were then repainted and the specimens, after being carefully cleansed, were replaced.

The skeleton of the Indian Elephant "Bolivar" was articulated and placed beside the mounted skin, while several other large skeletons were remounted.

On the bird gallery the labelling of the exhibition collection was practically completed.

In addition to the work on the Mammals and Osteological collection, Mr. McCadden, the taxidermist, has prepared a number of skins and skeletons for the study collection, including the skeleton of a Lesser Sperm Whale.

A large amount of research and routine work has been done by members of the staff in connection with the study collections as outlined in the accompanying special reports.

Beside this, Dr. J. P. Moore has cared for the collection of annelids and has studied and described the extensive collections dredged in the North Pacific by expeditions representing the U. S. Bureau of Fisheries, Leland Stanford University, and the University of California, from which the Academy receives duplicates. Numerous other specimens of worms submitted by institutions and individuals have been identified.

Mr. H. W. Fowler has cared for the collection of fishes and, beside routine work, has critically studied and reidentified the batoid, chimæroid and ganoid fishes and part of the clupeoids, preparing seven papers for the Academy's PROCEEDINGS.

Mr. J. A. G. Rehn, in the portion of his time devoted to Entomology, has studied the North Carolina Orthoptera in the Academy collection and that of Mr. Morgan Hebard and prepared a paper on the subject for the PROCEEDINGS, as well as on the collection of Georgia and Florida Orthoptera submitted by the Georgia State Entomologist, from which the Academy received duplicates. He has likewise published a revision of the genus *Ischnoptera*.

Miss H. N. Wardle has continued the cataloguing of the Archaeological collection.

The Curators are also indebted to Mr. E. T. Cresson, Jr., for aid in the entomological department, and to Messrs. S. S. Van Pelt and Bayard Long for voluntary work in mounting and caring for the local collection of plants.

A number of important field trips were taken during the year in the interest of the Academy. Dr. H. A. Pilsbry spent several months in Arizona making collections of Mollusks, Reptiles and Plants. Mr. Vanatta spent some weeks in Bermuda, and Dr. Moore was at Martha's Vineyard during the summer, both of them obtaining interesting invertebrate material, while Mr. Stewardson Brown, during a month's sojourn in Jamaica, secured a valuable series of the plants of the island.

Through the liberality of Mr. Morgan Hebard, Mr. Rehn was enabled to join him on another tour of the Western States in search of Orthoptera and a large collection was made in which the Academy shares. Numerous local collecting trips were also taken by members of the staff.

Among the important accessions of the year may be mentioned the valuable unique specimens obtained by Mr. Clarence B. Moore during

his continued investigations among the Indian mounds of the southern United States, for the accommodation of which Mr. Moore has presented another mahogany and plate-glass exhibition case.

Dr. Amos P. Brown has presented an extensive series of mollusks obtained by him during several trips to Jamaica during the year, and Mr. Joseph Crawford, who accompanied him on one trip, has presented a collection of Jamaican plants.

The H. H. Smith 1905-09 collections of fresh-water mollusks of Alabama were obtained by purchase, and a collection of birds from Chihuahua, Mexico, was presented by Dr. William E. Hughes. A number of mammals were also received from the Zoological Society of Philadelphia.

Thirty-one storage cases and two hundred insect boxes were procured during the year.

There has been a good attendance of visitors to the Museum, especially on Sunday afternoons, and a marked increase is noticeable in the number of school classes which have visited the institution under the charge of their teachers.

A number of visiting specialists have made use of the study collections during the year in the various departments of the Museum, and specimens have been loaned to the following: W. W. Eggleston, L. W. Riddle, Bayard Long, Ivar Arvidson, W. E. Clyde Todd, Robert Ridgway, P. Wytsman, C. H. Eigenmann, D. G. Elliot and J. C. Merriam.

SAMUEL G. DIXON,
HENRY A. PILSBRY,
WITMER STONE,
Curators.

REPORT OF THE DEPARTMENT OF MOLLUSCA.

During the past year continued progress has been made in the arrangement of the study collections of mollusks. About half of the alcoholic series has been overhauled and classified in the new storage cases. No work has been done on the display collection owing to building operations.

Over 4,000 lots have been added to the collection, the number of individual specimens being estimated at over 25,000. Among the more interesting gifts to the collection the following may be mentioned: series of Jamaican and Panamic land snails collected by Dr. Amos P. Brown; South American shells sent by Dr. H. von Ihering of the Museu Paulista, Brazil, and a series from the Kaibab and Kanab

plateaus, Arizona, collected by Messrs. J. H. Ferriss and L. E. Daniels in 1909. Mr. Clarence B. Moore and Mr. Y. Hirase have continued to contribute valuable material.

Through illness the Department was deprived of the services of Mr. Vanatta during six months of the year, but he took advantage of the period of convalescence to collect an extensive and valuable series of the mollusks of Bermuda. Mr. Vanatta has demonstrated that Bermuda has a fresh-water fauna containing no less than five genera of mollusks. Hitherto it has been supposed that no native fresh-water mollusks existed there.

Work on the MANUAL OF CONCHOLOGY has been directed to the Hawaiian family *Achatinellidae*.

Papers have been published by the Special Curator during the year on the mollusks of Mexico; of the Chiricahua Mountains, Arizona; on land mollusks of Panama, and of Jamaica (in collaboration with Dr. Brown); on Haitian Oligocene fossils, etc. Mr. Vanatta has prepared a paper on the mollusks of Bermuda for publication in the PROCEEDINGS.

The Special Curator spent three months, beginning August 15th, in the exploration of southern New Mexico and Arizona, in company with Messrs. Ferriss and Daniels. The Hachita Grande, Santa Rita, Baboquivari, Dragoon and other mountain ranges were studied. It is believed that the observations made will add materially to our knowledge of the zoogeography of the arid southwest. The collections are also interesting systematically, since a large number of species new to science was encountered.

HENRY A. PILSBRY,

Special Curator.

REPORTS OF THE SECTIONS.

BIOLOGICAL AND MICROSCOPICAL SECTION.

Nine regular and eight informal meetings have been held during the year, with the usual attendance. The membership is the same in number as last year, one resignation having occurred and one new member being admitted. In accordance with custom, the proceedings at the meetings have consisted chiefly of oral communications, in which each member present has shared, of microscopical studies, many of which have represented original work. It is to be regretted that

in an association composed of amateurs whose time is limited work of much scientific value is impossible. There are lines, however, along which the Section may direct good work and it is suggested that a descriptive catalogue of the local cryptogamic flora, not heretofore published, be attempted, in conjunction, possibly, with other Sections of the Academy.

Among papers presented and published are two by Mr. T. Chalkley Palmer: *A New Diatom*, and *Stauroneis Terryi*.

At a special meeting of the Section held in April, in the Library of the Academy, an exhibition of microscopical objects was presented to a large audience. A number of papers also were read and are noted in the PROCEEDINGS.

The officers elected for the ensuing year are as follows:

<i>Director</i>	J. Cheston Morris, M.D.
<i>Vice-Director</i>	T. Chalkley Palmer.
<i>Recorder</i>	Charles S. Boyer.
<i>Treasurer</i>	Thomas S. Stewart, M.D.
<i>Curator</i>	F. J. Keeley.
<i>Corresponding Secretary</i>	Silas L. Schumo.

CHARLES S. BOYER,
Recorder.

ENTOMOLOGICAL SECTION.

The scientific communications made to the Section during the year have been published in the ENTOMOLOGICAL NEWS. This journal has completed its twenty-first volume with the December number for this year. For 1910, 484 pages and 14 plates were issued.

The usual meetings of the Section have been held, with an average attendance of nine persons.

Two members and two associates have been elected. The additions to the collection have been numerous. Mr. Morgan Hebard presented 1,047 specimens of Orthoptera and 3,605 specimens of the same order were purchased by the Academy. In all 5,957 insects were added to the collections.

One hundred and fifty boxes have been acquired to accommodate this growth. The safety and rearrangement of the collection has had the usual care, and with the improvement in cases and boxes the danger from museum pests has been greatly decreased.

The entire exotic series of Orthoptera, the North American Forficulidae, Blattidae, Mantidae, Phasmidae and Gryllidae have been

rearranged, together with the duplicate Hymenoptera, the collection of galls and the Dipterous family Stratiomyidæ.

A large part of the Micro-lepidoptera has been relaxed and mounted and nearly the entire series of North American Rhopalocera has been rearranged. Much of the Hemiptera has been recently studied and named by a specialist. The incorporation of the additions to the collection has taken much time, and the Section is indebted to those students not directly responsible for the work.

Mr. Rehn has had charge of the Orthoptera and Dr. Calvert has continued to care for the large and valuable collection of Odonata. Mr. E. T. Cresson is working on the arrangement of parts of the collection of Hymenoptera.

The Conservator represented the Academy at the First International Entomological Congress, held in Brussels, Belgium, last August.

This meeting demonstrated the great importance of entomology from a practical or economic standpoint, particularly that branch of economic entomology relating to the dissemination of disease by insects and the carriage of germ diseases to man.

The following persons were elected officers to serve for the ensuing year:

<i>Director</i>	Philip Laurent.
<i>Vice-Director</i>	H. W. Wenzel.
<i>Treasurer</i>	E. T. Cresson.
<i>Conservator</i>	Henry Skinner.
<i>Recorder</i>	Henry Skinner.
<i>Secretary</i>	E. T. Cresson, Jr.
<i>Publication Committee</i>	E. T. Cresson, E. T. Cresson, Jr.

BOTANICAL SECTION.

Five double wooden cases, which had to be moved from the north room owing to the change of windows on Race Street, were transferred to the local herbarium, the plants contained in them being moved into new dust- and insect-proof metal cases. But little work has been done on the arrangement of the herbarium owing to the remodelling of the building, though the preparation and mounting of specimens has gone on with but little interruption.

Some important additions have been made to the collections during the year. The Conservator spent about a month in Jamaica and brought back a collection of more than 850 sheets. Mr. Joseph Crawford spent

about the same length of time in Panama and Jamaica, adding about 800 sheets, and more than 100 sheets from Jamaica and Cuba have been received in exchange from the New York Botanical Garden. On the Academy's expedition to Arizona and New Mexico, in the latter part of the year, Dr. Pilsbry collected nearly 800 sheets of plants, and 640 sheets, principally from Nevada and California, have been purchased by the Section from Mr. A. A. Heller. Other collections, aggregating about 400 sheets, have been received from B. H. Smith, Dr. C. D. Fretz, Witmer Stone and Charles S. Williamson.

The work in the local herbarium has been carried on with greater effect than during any previous year, the 3,511 sheets added by the members of the Philadelphia Botanical Club having been mounted and distributed by Mr. Samuel S. Van Pelt. Much valuable work, especially in studying some of the more complex groups, has been done by Mr. Bayard Long.

During the year a small printing outfit was added to the equipment of the herbarium, resulting in the saving of much time and labor in label writing, besides insuring uniformity in style and size of labels. Acknowledgment is here made of the continued assistance in the herbarium during the year of Miss Ada Allen.

At the annual meeting of the Section, held on December 6, the following were elected as officers for the year:

<i>Director</i>	Benjamin H. Smith.
<i>Vice-Director</i>	Joseph Crawford.
<i>Secretary and Recorder</i>	Charles S. Williamson.
<i>Treasurer and Conservator</i>	Stewardson Brown.

Respectfully submitted,
 STEWARDSON BROWN,
Conservator.

MINERALOGICAL AND GEOLOGICAL SECTION.

The Section has this year held five meetings, besides meeting once (May 17) in conjunction with the Academy. Communications were made by Mr. S. L. Schumo, with his own photographic illustrations, on pot-holes at the Falls of Schuylkill; by Prof. Chester A. Reeds, on the geology of the Arbuckle Mountains, Oklahoma; by Dr. Edgar T. Wherry, on copper deposits of Franklin and Adams Counties, Pa., besides various shorter communications and discussions.

There were seven field excursions of the Section, with an average attendance of about twenty-five. The excursions visited: (1) The

crystalline rocks, old Paleozoic rocks and a trap dike near Lafayette, Marble Hall and Spring Mill, Montgomery County; (2) The crystalline rocks south of West Chester; (3) The New Red and crystalline rocks near Langhorne, Bucks County; (4) The crystalline rocks between Newtown Square and Wallingford, Delaware County; (5) The minerals and fossils near Mullica Hill, N. J.; (6) The crystalline rocks near Paoli and Castle Rock, Delaware County; (7) The New Red rocks near the Buckingham Mountain fault, in Bucks County.

The membership of the Section has increased by one associate member.

The following officers of the Section have been elected for the year 1911:

<i>Director</i>	Benjamin Smith Lyman.
<i>Vice-Director</i>	Frank J. Keeley.
<i>Recorder and Secretary</i>	S. L. Schumo.
<i>Treasurer</i>	William B. Davis.
<i>Conservator</i>	George Vaux, Jr.

Respectfully submitted by order of the Section.

BENJAMIN SMITH LYMAN,

Director.

ORNITHOLOGICAL SECTION.

As was the case last year, work in the Ornithological department has been seriously handicapped by the absence of Mr. Rehn in the West during three months and the general curatorial work that has devolved upon the Conservator. Nevertheless, much progress has been made in the arrangement of the collection. All of the remaining mounted birds, with the exception of the humming-birds, have been identified and labelled, practically completing this important piece of work.

In the study collection all of the families of Passerine birds from the thrushes to the crows, comprising some 450 drawers of skins, have been reidentified and rearranged, while all the species represented in the collection have been checked off in Sharpe's *Hand List of Birds*, so that it will soon be possible to see at a glance exactly what species the Academy possesses in each family.

Labels have also been placed on all the drawers as far as the Turdidæ.

Twelve metal cases were procured during the year, part of which were used in the rearrangement of the Passeres, while the others were

allotted to the type specimens, which were carefully examined and rearranged systematically.

Among the important accessions of the past year may be mentioned the local collection of Mr. F. Guy Meyers, a valuable series of Chihuahuan birds presented by Dr. William E. Hughes, and a series of Costa Rican birds obtained by purchase.

The Delaware Valley Ornithological Club, Spencer Baird Ornithological Club and Pennsylvania Audubon Society have held their meetings at the Academy during the year.

The Conservator is indebted to Mr. J. A. G. Rehn for valuable assistance in cataloguing and for preparing the labels for the mounted birds, and to Mr. E. J. F. Marx, of the Delaware Valley Club, who spent several weeks as voluntary assistant in rearranging portions of the collection.

At the annual meeting the following officers were elected.

<i>Director</i>	Spencer Trotter, M.D.
<i>Vice-Director</i>	George Spencer Morris.
<i>Recorder</i>	Stewardson Brown.
<i>Secretary</i>	William A. Shryock.
<i>Conservator and Treasurer</i>	Witmer Stone.

WITMER STONE,
Conservator.

The annual election of Officers, Councillors and Members of the Committee on Accounts to serve during 1910 was held, with the following result:

PRESIDENT	Samuel G. Dixon, M.D., LL.D.
VICE-PRESIDENTS	Edwin G. Conklin, Ph.D., Sc.D. John Cadwalader.
RECORDING SECRETARY	Edward J. Nolan, M.D.
CORRESPONDING SECRETARY	J. Percy Moore, Ph.D.
TREASURER	George Vaux, Jr.
LIBRARIAN	Edward J. Nolan, M.D.
CURATORS	Samuel G. Dixon, M.D., LL.D., Henry A. Pilsbry, Sc.D., Witmer Stone, Henry Tucker, M.D.
COUNCILLORS TO SERVE THREE YEARS	Thomas H. Fenton, M.D., Edwin S. Dixon, Henry Skinner, M.D., Robert G. LeConte, M.D.

COUNCILLOR FOR UNEXPIRED TERM OF

ONE YEAR.....	William E. Hughes, M.D.
COMMITTEE ON ACCOUNTS.....	Charles Morris, Samuel N. Rhoads, John G. Rothermel, Thomas H. Montgomery, Ph.D., Frank J. Keeley.

COUNCIL FOR 1911.

Ex-Officio.—Samuel G. Dixon, M.D., LL.D., Edwin G. Conklin, Ph.D., John Cadwalader, Edward J. Nolan, M.D., J. Percy Moore, Ph.D., George Vaux, Jr., Henry A. Pilsbry, Sc.D., Witmer Stone and Henry Tucker, M.D.

To serve three years.—Thomas H. Fenton, M.D., Edwin S. Dixon, Henry Skinner, M.D., Robert G. LeConte, M.D.

To serve two years.—Philip P. Calvert, Ph.D., Thomas Biddle, M.D., Frederick Prime Frank J. Keeley.

To serve one year.—Charles B. Penrose, M.D., Charles Morris, Spencer Trotter, M.D., William E. Hughes, M.D.

CURATOR OF MOLLUSCA.....	Henry A. Pilsbry, Sc.D.
ASSISTANT LIBRARIAN.....	William J. Fox.
ASSISTANTS TO CURATORS.....	Henry Skinner, M.D., Stewardson Brown, J. Percy Moore, Ph.D., Edward Vanatta, Henry W. Fowler, James A. G. Rehn, Ezra T. Cresson, Jr.
AID IN ARCHEOLOGY.....	Harriet Newell Wardle.
AID IN HERBARIUM.....	Ada Allen.
ASSISTANT IN LIBRARY.....	Furman Sheppard Wilde.
<i>Taxidermist</i>	David N. McCadden.
<i>Janitors</i>	Charles Clappier, Daniel Heckler, James Tague, Jacob Aehley, Adam E. Heckler.

STANDING COMMITTEES.

FINANCE.—John Cadwalader, E. S. Dixon, Effingham B. Morris, William D. Winsor and the Treasurer.

PUBLICATIONS.—Henry Skinner, M.D., Witmer Stone, Henry A. Pilsbry, William J. Fox, Edward J. Nolan, M.D.

LIBRARY.—Thomas H. Fenton, M.D., George Vaux, Jr., Henry Tucker, M.D., Frank J. Keeley and Thomas Biddle, M.D.

INSTRUCTION AND LECTURES.—Henry A. Pilsbry, Sc.D., Charles Morris, Witmer Stone, Henry Tucker, M.D., George Spencer Morris.

COMMITTEE OF COUNCIL ON BY-LAWS.—Thomas Fenton, M.D., John Cadwalader, Charles B. Penrose, M.D., Witmer Stone.

ELECTIONS DURING 1910.

MEMBERS.

January 18.—Hamilton D. Carpenter.

February 15.—Merkel H. Jacobs, Ph.D., E. Waterman Dwight
Edward Anthony Spitzka, M.D.

April 19.—John B. Henderson, Jr.

May 17.—Edgar Madison Ledyard.

November 15.—Robert Adams, Jr.

CORRESPONDENTS.

November 15.—Edward B. Poulton, D.Sc., A.M., of Oxford; Thomas Hunt Morgan, Ph.D., of New York; Leland Ossian Howard, Ph.D., of Washington.

ADDITIONS TO THE MUSEUM, 1910.

MAMMALS.

- O. H. BROWN. Hoary Bat (*Lasiurus cinereus*), Cape May, N. J.
ROBERT D. CARSON. Dornouse Lemur (*Microcebus myoxinus*).
F. W. CASSEDY. Albino Grey Squirrel (*Sciurus carolinensis*), Cape May, N. J.
BENJAMIN CHEW. Mounted head of Asiatic Ibex (*Capra sibirica*), Thian Shan Mountains, Chinese Turkestan.
J. H. FERRISS. Skin and skull of Coues's Deer (*Odocoileus couesi*), Santa Catalina Mountains, Arizona.
J. HABISREITINGER. Albino Mink skin (*Lutroica vison*).
DR. J. PERCY MOORE. Seven specimens of White-footed Mouse (*Peromyscus leucopus fuscus*), Martha's Vineyard, Mass.
PURCHASED. Pygmy Sperm Whale (*Kogia breviceps*), Sea Isle City, N. J.
Skin and skull of Beaver (*Castor canadensis*).
MRS. CHARLES SCHÄFFER. Albino Streater's Chickaree (*Sciurus hudsonicus streatori*), Glacier, B. C.
CHARLES S. WELLS. Skull of Red Fox (*Vulpes fulvus*).
ZOOLOGICAL SOCIETY OF PHILADELPHIA. Specimens prepared as follows:
Mounted: Potto (*Perodicticus potto*): skin and skull; two white-throated Monkeys (*Cercopithecus albicularis*), Moloney's Monkey (*Cercopithecus moloneyi*), Woolly Monkey (*Lagothrix* sp.), Black-backed Jackal (*Canis mesomelas*), White-whiskered Paradoxure (*Paradoxurus leucomystax*), two individuals of brown phase of Black Bear (*Ursus americanus*), California Sea-lion (*Zalophus californianus*), Kangaroo Rat (*Dipodomys dactor*), American Porcupine (*Erethizon dorsatum*), Bridled Wallaby (*Onychogale frenata*): skin and skeleton; Lion "Prince" (*Felis leo*), European Brown Bear (*Ursus arctos*), Sing-sing Antelope (*Kobus unctuosus*): skull; Reddish Macaque (*Macacus rufescens*).

BIRDS.

- EDW. E. ARMSTRONG. Two Lapland Long-pur (*Calcarius lapponicus*), Illinois.
DR. WILLIAM E. HUGHES. Collection of Chihuahuan birds. Meyers collection of Pennsylvania and Virginia birds.
DR. JAMES V. INGHAM. Ten skins of Trinidad Humming-birds.
WM. H. PATTERSON. Skin of Mynah (*Mainatus intermedius*).
PURCHASED. Collection of Costa Rican birds. One long-tailed Duck (*Harelda hyemalis*) and two black Duck (*Anas rubripes*), Sea Isle City, N. J.
MRS. CHARLES ROBERTS. Two Ptarmigan (*Lagopus lagopus*), Alaska. One Great-horned Owl (*Bubo virginianus*).
MRS. J. D. WINSOR. Black-throated Blue Warbler (*Dendroica caerulescens*).
DAVID H. WRIGHT. Short-eared Owl (*Asio accipitrinus*).
ZOOLOGICAL SOCIETY OF PHILADELPHIA. Skeleton of Single-wattled Cassowary (*Casuarus unappendiculatus*). Jobi Island Cassowary (*Casuarus unappendiculatus occipitalis*), mounted.

REPTILES AND AMPHIBIANS.

JACOB AEBLY. Tree-toad (*Hyla versicolor*), Philadelphia.

O. H. BROWN. Spade-foot Toad (*Scaphiopus holbrooki*), Cold Spring, Cape May County, N. J.

H. W. FOWLER. Jar of Frogs, Toads and Salamanders (*Elaphe* and *Natrix sipedon*), three mud turtles (*Kinosternum pensylvanicum*), Big Bohemia Creek, Md. Several species of *Hyla*, Holmesburg, Philadelphia.

J. B. HUTCHER. Tadpole, Patagonia.

J. W. HOLMAN. Opaque Salamander (*Ambystoma opacum*), Ocean County, N. J.

C. J. HUNT. Green Snake (*Liopeltis vernalis*), Chicago, Ill. Swamp Tree-toad (*Pseudacris triseriatus*), Riverside, Ill.

HEBARD-REHN EXPEDITION 1910. Eighty-one reptiles and amphibians, western United States.

H. L. MATHER, JR. Numerous collections of reptiles and amphibians, Pennsylvania.

H. L. MATHER and EDW. CARR, JR. Several Salamanders.

H. A. PILSBRY. One Box-tortoise (*Terrepen* sp.), Arizona.

PILSBRY EXPEDITION 1910. Sixty-five reptiles and amphibians, Southwestern United States.

H. PORTER and H. W. FOWLER. Jar of amphibians, Newark, Del.

LOUIS H. SCHMIDT. Mounted Leather-back Turtle (*Dermochelys coriaceus*), Portland, Me.

L. S. SNYDER. Collection of Salamanders and Toads, Montgomery County, Pa.

C. H. STALL. Copperhead Snake (*Agkistrodon contortrix*) and Hellbender (*Cryptobranchus alleganiensis*), Newton Hamilton, Pa.

MRS. LINDA SULLIVAN. *Hyla squirella*, from head of Florida lettuce.

JAMES TAGUE. Five-legged Frog (*Rana clamata*), Philadelphia.

E. G. VANATTA. Two Lizards and one Toad, Bermuda.

WILLIAM WELSH. Red-bellied Turtle (*Pseudemys rubriventris*), May's Landing, N. J.

FISHES.

R. M. ABBOTT and H. W. FOWLER. Collection of fishes, Lake Hopatcong, N. J.

JACOB AEBLEY. Disarticulated skull of *Anarrhichas lupus*, Maine.

CORNELL UNIVERSITY. Collection of Cyprinoids (in exchange).

FRANK ERICSON. Two young Dolphins (*Coryphæna hippurus*), Sea Isle City, N. J.

R. B. FARLEY. Sting-ray (*Dasyatis say*), Barnegat, N. J.

H. W. FOWLER. Collection of several hundred fishes from Big Bohemia Creek, Md. Also a collection from Delaware County, Pa., and Manasquan, N. J. Several fishes from Bustleton, Philadelphia. Collection of young fishes from Burlington, N. J. One hundred fishes, Wycombe, Pa.

H. W. FOWLER and H. L. MATHER, JR. Local collections of fishes. Collection of fishes from Neshaminy Creek. Jar of fishes, Claymont, Del. Small collection of fishes from Carcroft, Del.

W. J. FOX. *Raja ocellata*, two *Phycis chuss*, one *Merluccius bilinearis*, two

Astrosopus guttatus, young *Albacora thynnus*, *Lobotes surinamensis* from Sea Isle City, N. J. Mandible of grouper from Townsend's Inlet, N. J.

B. W. GRIFFITHS and H. W. FOWLER. Collection of fishes, Elmer, N. J.

H. WALKER HAND. *Sciaenops ocellatus*, Cape May, N. J.

F. J. KEELEY. Trigger Fish (*Balistes carolinensis*), Great Egg Harbor, N. J.

T. D. KEIM. Small collection of fishes, northern New Jersey and vicinity of New York City. Three jars of fishes from Long Island Sound.

T. D. KEIM and H. W. FOWLER. Small collection of fishes, Burlington Island, N. J. Eight jars of fishes from Delaware.

E. J. F. MARX and H. W. FOWLER. Three jars of fishes, Easton, Pa.

H. L. MATHER, JR. Seven jars of fishes, Newton Hamilton, Pa. Jar of fishes from Philadelphia and three jars of fishes from Altoona, Pa.

D. N. MCCADDEN. *Rachycentron* and *Echeneis*, Ocean City, N. J. Sole (*Achirus fasciatus*), Ocean City, N. J. Also collection of fishes from same place.

DR. R. J. PHILLIPS. Collection of fishes, Corson's Inlet, N. J. Also *Paralepis* from same locality.

DR. R. J. PHILLIPS and H. W. FOWLER. Collection of fishes, Corson's Inlet, N. J. Four jars of fishes from Wilmington, Del.

PILSBRY EXPEDITION 1910. Three species of fishes, Arizona.

H. PORTER and H. W. FOWLER. Jar of fishes, Newark, Del.

E. G. VANATTA. Three fishes, Bermuda.

INSECTS.

STEWARTSON BROWN. Three Lepidoptera, Jamaica.

P. P. CALVERT. Twenty-one Neuroptera, Costa Rica.

T. D. A. COCKERELL. Two Coccidæ, Trinidad.

EXCHANGE. Seventy Orthoptera, Georgia and Florida; four Lepidoptera, New Mexico.

E. T. CRESSON, JR. Seventy-nine Diptera, United States.

H. W. FOWLER. Five Orthoptera, Delaware.

G. M. GREENE. Seventeen Orthoptera, Pennsylvania; two Coleoptera, New Jersey.

FORDYCE GRINNELL, JR. Forty-six Orthoptera, California.

F. HAIMBACH. Five Lepidoptera, Massachusetts.

H. S. HARBECK. Two Hymenoptera, New Jersey.

MORGAN HEBARD. Four hundred and seventy-eight Orthoptera, North Carolina; four hundred and sixty-seven Orthoptera, Sapucay, Paraguay; one hundred and two Orthoptera, Manitoba.

MORGAN HEBARD and J. A. G. REHN. Twenty-five insects, Virginia and North Carolina.

FRANK M. JONES. Fifty-three Orthoptera, Mississippi.

JOSEPH MCFARLAND. One hundred and fifty insects, United States.

A. DE WINKELRIED BERTONI. Thirty-two Orthoptera, Paraguay.

L. C. PHELEY. Sixteen Orthoptera, Kentucky.

W. D. PIERCE. Sixteen Strepsiptera, Kentucky.

G. R. PILATE. Two hundred Coleoptera, California.

H. A. PILSBRY. Seven Coleoptera, Arizona; five Orthoptera, Arizona and New Mexico.

PURCHASED. Two thousand five hundred and six Orthoptera, Africa and Peru; five hundred and ninety-one Orthoptera, Trinidad and Venezuela; three hundred and fifty Orthoptera, Jalisco, Mexico; one hundred and fifty-eight Orthoptera, Natal.

MRS. CHARLES SCHÄFFER. Eleven Lepidoptera, Canada.

C. SCHROTTKY. Twenty-one Orthoptera, Paraguay.

HENRY SKINNER. Six Lepidoptera, British Columbia; one Coleoptera, Pennsylvania; three Lepidoptera, Alaska.

E. A. SMYTH, JR. Two Lepidoptera, Central America.

WITMER STONE. Eleven insects, Massachusetts.

LANCASTER THOMAS. Five hundred Lepidoptera, North Carolina.

E. P. VAN DUZEE. One Hemiptera, Florida.

W. H. WHEELER. Five Hymenoptera, Nova Scotia.

Five thousand nine hundred and fifty-seven specimens.

RECENT MOLLUSCA.

R. M. ABBOTT and H. W. FOWLER. Ten trays of fresh-water shells from Lake Hopatcong, N. J.

BENJAMIN ALBERTSON. Two species of shells from Nantucket, Mass.

JOHN A. ALLEN. Nineteen species of shells from Tahiti and Ohio.

J. L. and A. L. BAILY, JR. Sixty trays of shells from Europe.

DR. F. BAKER. Seven species of marine shells from the west coast of America.

DR. AMOS P. BROWN. Four hundred and seventy-seven trays of Jamaica shells.

FRANCIS H. BROWN. Three species of fresh-water shells from Canada.

STEWARTSON BROWN. *Planorbis* from Norwood, Jamaica.

OWEN BRYANT. *Paludetrina* from Bermuda.

G. W. CAFFEY. *Helix* from Spain.

A. W. CLIME. Fourteen specimens of *Unio* from Arkansas.

C. H. CONNER. Nine trays of land and fresh-water shells from Pennsylvania.

C. M. COOKE. Thirty-two trays of *Lepachatina* from the Hawaiian Isles.

DR. W. H. DALL. Six trays of shells from Africa and North America.

L. E. DANIELS and J. H. FERRISS. Fifty-eight trays of shells from Arizona.

PROF. C. A. DAVIS. Two sets of *Paludetrina* from Bermuda.

H. K. DEISHER. Five species of land and fresh-water shells from Kurtztown, Pa.

J. H. FERRISS. One hundred and forty-one trays of land shells from Arizona.

H. W. FOWLER. Thirty-five trays of shells from Pennsylvania and Maryland.

MORGAN HEBARD. Twenty-three species of land and fresh-water shells from Florida.

J. B. HENDERSON, JR. Five species of land shells from Hamilton County, N. Y.

Y. HIRASE. Forty-three species of land shells from Corca, Japan and China.

H. V. IHERING. Forty-one trays of fresh-water shells from South America.

SAMUEL R. JACOBS. Eight species of shells from Ireland and Pennsylvania.

T. D. KEIM. Twelve trays of shells from Delaware and Connecticut.

C. A. KOFOID. *Helix aspersa* Müll from Berkeley, Cal.

J. G. MALONE. Sixteen species of West Coast shells.

H. T. MATHER, JR. Six species of fresh-water shells from Hamilton County, Pa.

CLARENCE B. MOORE. Three hundred and thirty-five trays of shells from Florida.

STANLEY B. MOORE. *Ariolimax columbianus* Gld. from Pinole, Cal.

DR. A. E. ORTMANN. Fourteen species of *Unios* from western Pennsylvania.

W. H. OVER. Seventeen trays of land and fresh-water shells from South Dakota.

PATAGONIAN EXPEDITION. One hundred and thirty-five trays of South American shells.

MAJOR A. J. PEILE, R. A. Fifteen species of shells from Bermuda and Africa.

DR. H. A. PILSBRY. Two hundred and five trays of shells from Arizona and Eastern States.

PURCHASED. One thousand seven hundred and eighty-one trays of shells.

J. A. G. REHN. Three species of land shells from Western States.

S. N. RHOADS. Forty-eight trays of shells from England.

S. RAYMOND ROBERTS. *Polygyra thyroides* Say from Mont Clair, N. J.

C. T. SIMPSON. Two shells from Porto Rico.

DR. H. SKINNER. Nine species of land shells from Italy and Dalmatia.

DR. V. STERKI. Three species of shells from Indiana and Ohio.

WITMER STONE. Seventy-three trays of shells from the Atlantic coast of United States.

E. G. VANATTA. Two hundred and ten trays of shells from Bermuda.

BRYANT WALKER. Nine trays of American fresh-water shells.

MISS H. N. WARDLE. Five species of land shells from Mexico.

H. W. WENZEL. *Campeoloma decisum* Say. Pocono, Pa.

H. W. WINKLEY. Three trays of New England shells.

R. T. YOUNG. Twenty-two species of shells from Devil's Lake, N. D.

INVERTEBRATES (OTHER THAN INSECTS AND MOLLUSKS).

W. J. BECKER. *Estheria californica*, Pacific Grove, Cal.

DR. A. P. BROWN. *Peripatus*, Jamaica.

W. T. KNECHT. *Balanus eburneus*.

J. G. MALONE. Echinoderm and *Balanus*, Alaska.

H. L. MATHER, JR. Several Crayfish (*Cambarus*).

D. N. MCCADDEN. Isopod from rock bass, Ocean City, N. J.

THOMAS O. MITCHELL. Barnacles from turtle, Atlantic City, N. J.

J. PERCY MOORE. Sixty-nine bottles of scaled Polycheta, including cotypes of nine species, from deep water off California.

WM. V. MORGAN. Bryozoan, Bermuda.

W. H. OVER. *Estheria morsei* Date, South Dakota.

H. A. PILSBRY. Myriapod, Ventnor, N. J., and two Scorpions, Arizona.

PRINCETON PATAGONIAN EXPEDITION. Three trays of Brachiopods.

PURCHASED. Fifteen trays of Terebratulina, Atlantic Ocean.

CHARLES E. RONALDSON. Shells of King-crab (*Limulus*), Buzzard's Bay, Mass.

WITMER STONE. Fourteen trays of invertebrates, New Jersey and Pennsylvania.

UNITED STATES FISH COMMISSION. Collection of invertebrates made on the Albatross Hawaiian Expedition.

E. G. VANATTA. Six jars of invertebrates, Bermuda.

WM. T. WRIGHT. *Pectinatella magnifica*, St. David's, Pa.

FOSSILS VERTEBRATE.

EXCHANGE WITH J. F. MOULDY. Collection of Moa bones, New Zealand.

INVERTEBRATE FOSSILS.

H. K. DEISHER. Slab of brachiopods, Berks County, Pa. Several slabs of dendrites. Twenty-nine trays of fossils, United States. Twenty-two specimens of fossils, Pennsylvania and Missouri.

DR. HENRY FOX. Twenty-nine trays of fossils, Jericho and New Egypt, N. J.; twenty-nine trays of Miocene fossils from New Jersey.

WM. IMES. Fossils brachiopods and mollusks, Juniata County, Pa.

H. K. DEISHER. Thirty trays of fossils from Clarion County, Pa.

DR. J. PERCY MOORE. Cretaceous fossils from Martha's Vineyard, Mass.

MINERALS.

MRS. M. BRINKMAN. Collection of minerals.

H. K. DEISHER. Collection of minerals, Berks County, Pa.

GEORGE E. EIWE. Hexagonal volcanic rock.

WM. IMES. Quartz crystals, Juniata County, Pa.

SPENCER PENROSE. Jillsanite, Ashley Valley, Utah.

C. E. RONALDSON. Garnets, Maine.

ESTATE OF LANCASTER THOMAS. Collection of minerals and crystal models

MRS. WILLIAM S. YARNALL. Collection of minerals.

WILLIAM S. VAUX COLLECTION. Twenty specimens purchased.

ETHNOLOGY AND ARCHÆOLOGY.

CHARLES M. BURNS. Two specimen of Cingalese Script.

ARTHUR W. CLIME. Thirty-seven specimens of modern work in stone, including an engraved sandstone gorget, small "celts" of chest, spear and arrowheads of quartz, flint, jasper, chest and glass flaked with stone and bone tools

WILLIAM IMES. Several arrowheads, Juniata County, Pa.

DR. FERNANDO SALAGAREN (through H. N. WARDLE). Two ceremonial coppers, Oaxaca, Mex.

MRS. M. T. S. SCHAEFFER. Embroidered bag and wood carving made by Ainu of Japan.

DR. RAYMOND SPEAR, U. S. N. Collection of Samoan implements, tapa clothes, etc.

H. NEWELL WARDLE. Basket made by Thicket Indians, Sitka, Alaska. Thirty-six ancient potsherds, rain coat, ten obsidian and terra cotta objects, Mexico.

PLANTS.

CHARLES C. BACHMAN. Three specimens.

EDWIN B. BARTRAM. Forty-five specimens.

G. WILLIAM BASSETT. Two specimens.

O. H. BROWN. One specimen.

STEWARTSON BROWN. Two hundred and ninety local and eight hundred and fifty Jamaica plants.

- JOEL J. CARTER. Nineteen specimens.
MRS. H. C. CHAPMAN. Collection of Bar Harbor plants.
JOSEPH CRAWFORD. Eight hundred Jamaica and Panama plants.
DR. JOHN W. ECKFELDT. Four specimens.
WILLIAM FINDLAY. Four specimens.
DR. C. D. FRETZ. Fifty specimens of *Cratægus*.
J. H. GROVE. Fifty specimens.
R. HEBER HOWE, JR. Three Lichens in exchange.
DR. IDA A. KELLER. Forty-five specimens.
DR. A. F. K. KROUT. One specimen.
HENRY A. LANG. Eight specimens.
FRANK LEAMING. Cedar log, Cape May Court House, N. J.
BAYARD LONG. Eighteen hundred and ninety-nine specimens.
NEW YORK BOTANICAL GARDEN. Thirty-eight Jamaica and eighty-two Cuban plants, in exchange.
FRANCIS W. PENNELL. Five specimens.
HAROLD W. PRETZ. One hundred and fifty-three specimens.
BENJAMIN H. SMITH. Sixty-eight specimens.
WITMER STONE. Eight hundred and ninety-three specimens.
E. G. VANATTA. Fourteen specimens.
SAMUEL S. VAN PELT. Forty-one specimens.
WESTTOWN SCHOOL. Two specimens.
CHARLES S. WILLIAMSON. Seventy-six specimens.
CAPT. J. H. WORKMAN. Specimen of Tuckahoe (*Pachyma cocos*)
ACADEMY'S EXPEDITION TO ARIZONA AND NEW MEXICO (DR. H. A. PILSBRY).
Seven hundred and eighty-three specimens.
BOTANICAL SECTION, PURCHASED. Seven hundred and forty specimens of Nevada and California plants.
GEORGE WELDER. Twelve slabs of fossil plants, Bucks County, Pa.



